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PENSOFT

New records of the drywood termite, *Incisitermes platycephalus* (Light, 1933) (Isoptera, Kalotermitidae), from Central America and senior synonym of *I. nigritus* (Snyder, 1946)

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Abstract

New World species of the genus *Incisitermes* Krishna, 1961 range from California to Peru. The soldier of this genus is notable for the incised anterior margin of the pronotum and the elongate third antennal article. I report the broad occurrence of *Incisitermes platycephalus* (Light, 1933) from extreme southern Mexico to the Pacific coast of Nicaragua. *Incisitermes nigritus* (Snyder, 1946) from Guatemala is a junior synonym of *I. platycephalus*. Among *Incisitermes*, *I. platycephalus* is characterized by its small size, dark imago, and dorsoventrally compressed soldier head capsule.

Keywords

Guatemala, Honduras, imago, Mexico, new records, new synonymy, Nicaragua, soldier.

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Introduction

The genus *Incisitermes* Krishna, 1961 occurs in all zoogeographical regions except the Ethiopian Region. The New World species of *Incisitermes* are found from northern California to central Peru (Scheffrahn 2019a). Species of *Incisitermes* are generally adapted to xeric conditions and are often pests of dry wood in service, most notably, the Western Drywood Termite, *I. minor* (Hagen, 1858). Collections of kalotermitid species tend to be underrepresented compared to other termite taxa because their workings are cryptic and they are difficult to extract from their home wood (Scheffrahn et al. 2018).

In tropical Mexico and mainland Central America, eight species of *Incisitermes* are known: *I. emersoni* (Light, 1933), *I. immigrans* (Snyder, 1922), *I. marginipennis* (Latreille, 1817), *I. nigritus* (Snyder, 1946), *I. nishimurai* Scheffrahn, 2014, *I. platycephalus* (Light, 1933), *I. schwarzi* (Banks, 1919) [= *I. tabogae* (Snyder, 1924), see James et al. 2013 and Boscaro et al. 2017], and *I. seeversi* (Snyder & Emerson, 1949). Of these, only *I. nigritus*, *I. nishamurae*, and *I. platycephalus* (shown herein) have dark imago coloration.

I now report new records of *I. platycephalus* from Mexico, Guatemala, Honduras, and Nicaragua. Furthermore, I consider *I. nigritus* to be a junior synonym of *I. platycephalus* (**new synonymy**).

Methods

Termites were aspirated from hatchet-exposed dead logs, branches, and fence posts and preserved in 85% ethanol. All samples are housed in the University of Florida Termite Collection (UFTC), Davie, Florida. Soldiers and the

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imago of *I. platycephalus* were photographed as multilayer montages using a Leica M205C stereomicroscope controlled by Leica Application Suite v. 3 software (Figs 1A, C, 2A, C). The *I. platycephalus* locality map was prepared using ArcMap v. 10.3.

Results

Incisitermes platycephalus (Light, 1933)

Figures 1–3

New records. GUATEMALA • 1 colony subsample (includes soldiers, workers, and/or imagos); Baja Verapaz, San Jeronimo; 15.0743, −90.2672; 992 m a.s.l.; 28 May 2006; B. Bahder, J. Chase, J. Křeček, B. Maharajh, J. Mangold, T. Myles, T. Nishimura, R. Scheffrahn and R. Setter leg. (same collectors for all Guatemala and Honduras samples); GUA13 • 1 colony subsample; Chiquimula, Ipala; 14.599, −89.6411; 873 m a.s.l.; 3 Jun. 2006; GUA791 • four colony subsamples; Jutiapa, El Chile; 14.5700, −89.6643; 882 m a.s.l.; 3 Jun. 2006; GUA804 • one colony subsample; Jutiapa, NW Jutiapa; 14.3307, −89.8622; 964 m a.s.l.; 3 Jun. 2006; GUA821 • 4 colony subsamples; Zacapa, Juan Ronce; 15.1221, −89.3914; 161 m a.s.l.; 2 Jun. 2006; GUA706 • 8 colony subsamples; Zacapa, N. Rio Hondo; 15.0678, −89.5199; 234 m a.s.l.; 3 Jun. 2006; GUA717 • 11 colony subsamples; Zacapa, Rio Hondo; 15.0872, −89.5073; 213 m a.s.l.; 3 Jun. 2006; GUA737. HONDURAS • 1 colony; El Paraíso, W. Zamorano; 14.0087, −87.0145; 815 m a.s.l.; 1 Jun. 2007; HN672 • 7 colony subsamples; León, V. San Francisco; 14.2108, −86.9675; 580 m a.s.l.; 1 Jun. 2007; HN510 • 1 colony subsample; Francisco Morazan, NE San Juancito; 14.2498, −87.0427; 871 m a.s.l.; 1 Jun. 2007; HN562 • 1 colony subsample; Francisco Morazan, SE San Juancito; 14.2290, −87.0501; 1125 m a.s.l..; 1 Jun. 2007; HN615 • 4 colony subsamples; Francisco Morazan, S. Amarateca; 14.2247, −87.3765; 991 m a.s.l.; 2 Jun. 2007; HN689 • 1 colony subsample; Valle, Coyolito; 13.3149, −87.6227; 77 m a.s.l.; 31 May 2007; HN401 • 1 colony subsample; Valle, Coyolito site 2; 13.3116, −87.6206; 45 m a.s.l.; 31 May 2007; HN465. MEXICO • 1 colony subsample; Chiapas, E. Tuxtla Gtz.; 16.6930, −92.824; 1422 m a.s.l.; 13 Jan. 1997; T. Myles leg.; MX11 • 1 colony subsample; Chiapas, Tapachula; 14.90, −92.28; 142 m a.s.l.; 10 Jun. 2006; R. Setter leg.; MX592. NICARAGUA • 6 colony subsamples; Boaco, N. Boaco; 12.4894, −85.6185; 376 m a.s.l.; 5 Jun 2004; J. Chase, B. Herrera, J. Křeček, B. Maharajh, J. Mangold, J. Moreno, and R. Scheffrahn leg (same collectors for all Nicaragua samples); NI840 • 4 colony subsamples; Boaco, Teustepe; 12.4140, −85.7624; 179 m a.s.l.; 5-Jun. 2004; NI873 • 3 colony subsamples; Grenada, Vulcan Mombacho; 11.8408, −86.0128; 408 m a.s.l.; 3 Jun. 2004; NI577 • 1 colony subsample; León, Road to León; 12.2411, −86.7141 42 m a.s.l.; 31 May 2004; NI 225 • 1 colony subsample; León, León; 12.4331, −86.9065; 65 m a.s.l; 31 May 2004; NI293 • 2 colony subsamples; Masaya, Finca de Bayardo; 11.9473, −86.1223; 12 m a.s.l.; 3 Jun. 2004; NI517 • 3 colony subsamples; Masaya, Laguna Masaya 2; 11.9850, −86.1228; 127 m a.s.l.; 5 Jun. 2004; NI886 • one colony subsample; Masaya, Laguna Masaya; 11.9734, −86.12502; 140 m a.s.l.; 5 Jun. 2004; NI917 • 2 colony subsamples; Matagalpa, Guaguali; 12.9200, −85.9843; 634 m a.s.l.; 30 May 2004; NI17 • 7 colony subsamples; Matagalpa, Guanacaste; 12.9168, −86.0136; 640 m a.s.l.; 30 May 2004; NI55 • 2 colony subsamples; Matagalpa, Los Cardones; 12.8851, −86.0534; 598 m a.s.l.; 30 May 2004; NI95 • 7 colony subsamples; Rivas, San Rafael de Valle; 11.2437, −85.8363; 57 m a.s.l.; 4 Jun. 2004; NI692 • 12 colony subsamples; Rivas, La Flor; 11.1814, −85.7942; 23 m a.s.l; 4 Jun. 2004; NI 733.

All published and new UFTC localities of *I. platycephalus* are given in Figure 4. All UFTC collection data and localities are available at Scheffrahn (2019b).

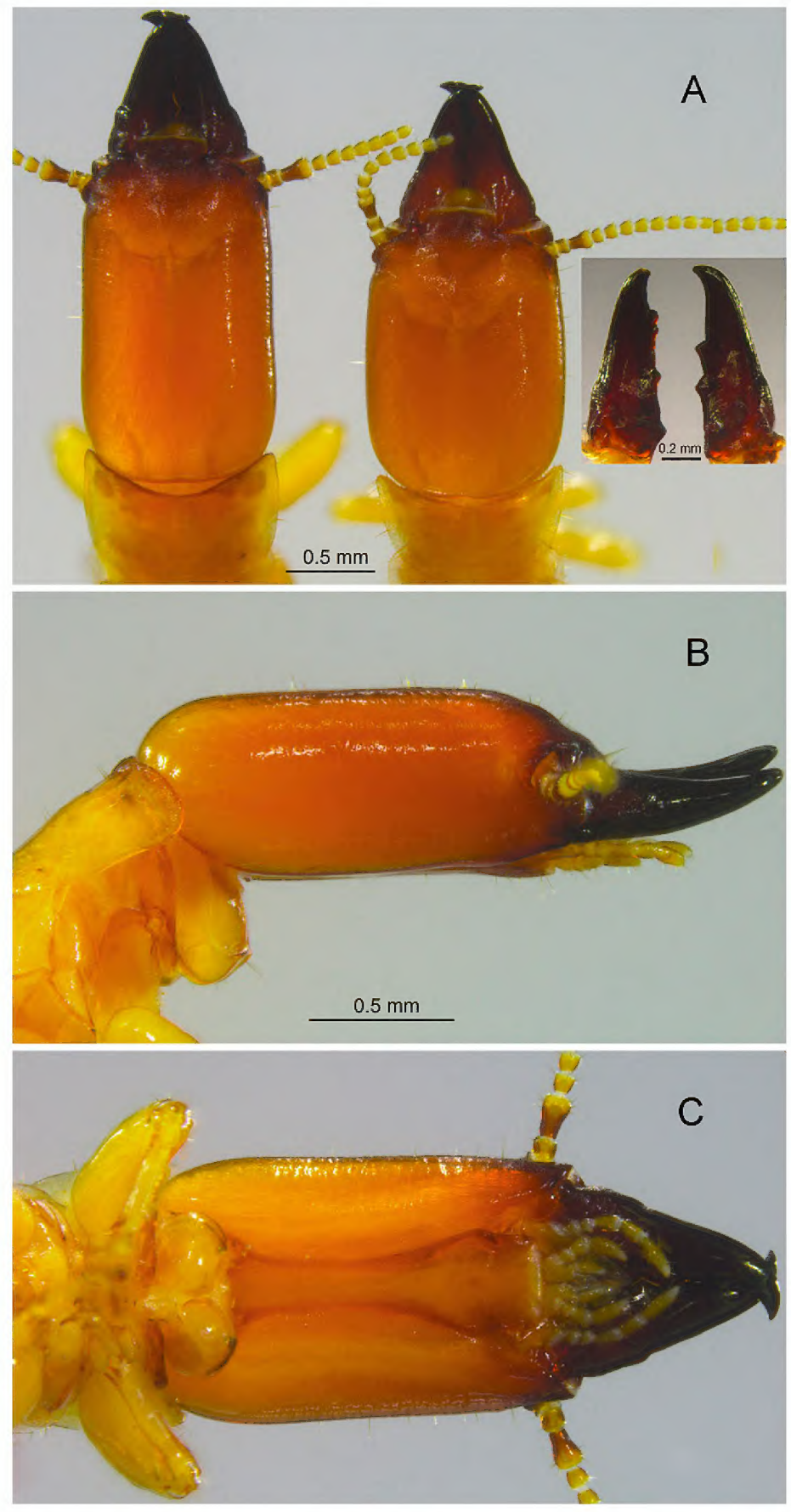

Figure 1. The *Incisitermes platycephalus* soldier from Honduras (HN401). **A.** Dorsal aspect of the long-headed (left) and short headed morph (inset: long-headed mandibles). **B.** Lateral, and **C.** ventral aspects of the long-headed morph (C same scale as B).

Figure 2. The *Incisitermes platycephalus* alate from Nicaragua (NI60). **A.** Lateral aspect of the habitus. **B.** Lateral, and **C.** dorsal aspects of the head and pronotum (C same scale as B).

Figure 3. Live habitus of *Incisitermes platycephalus* alates (left) and soldier from Honduras. Photos taken in Petri dishes.

Only three previous localities for *I. platycephalus* have been confirmed; Mexico: Madrid, Colima (Light 1933), Guatemala: San Jose (type locality of *I. nigritus*), and Nicaragua (unspecified locality as *I. nigritus*) by Scheffrahn et al. (2005). The Guatemala locality was the port of origin for an infested *Guajacum officinale* log shipped

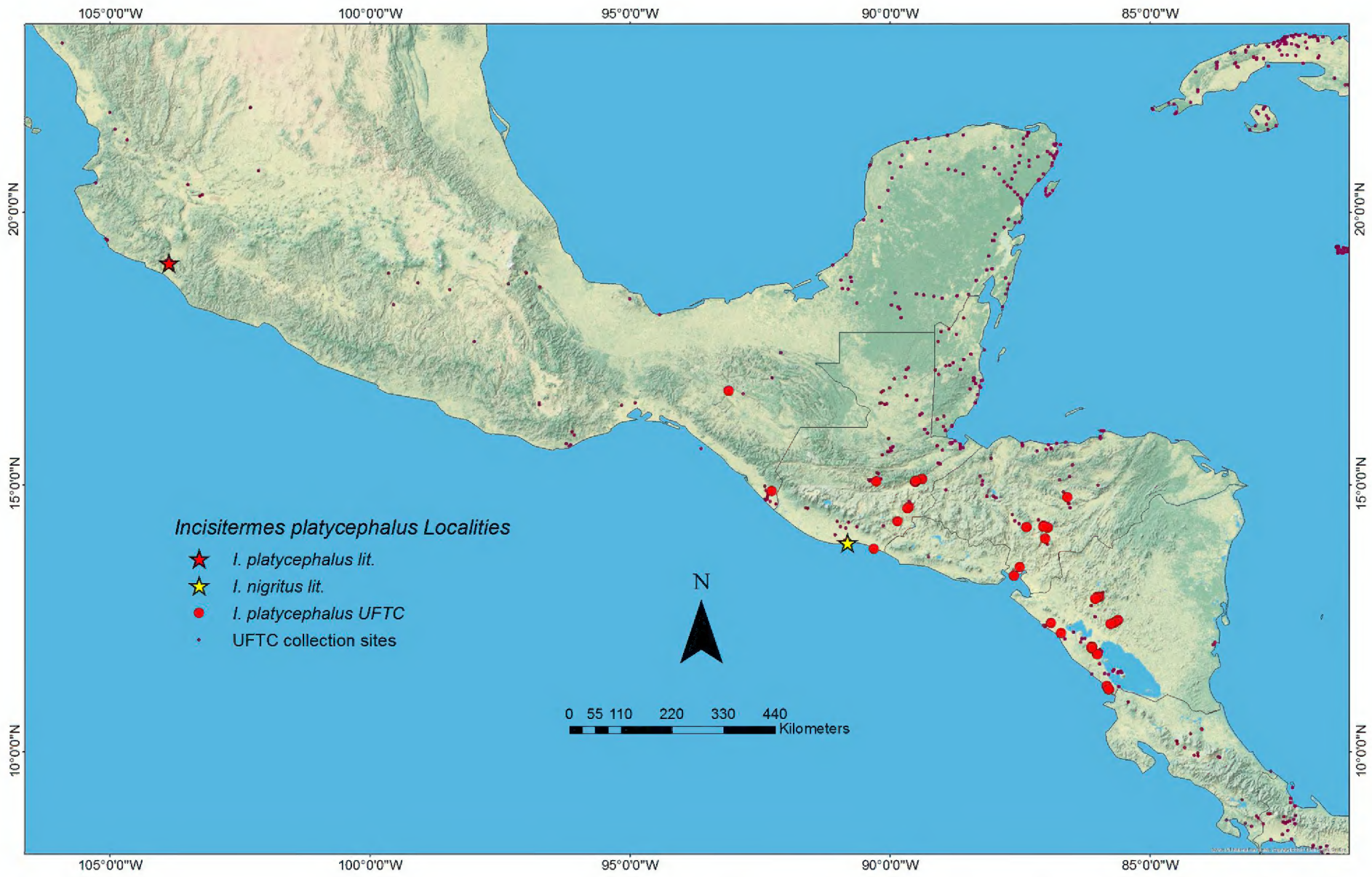

Figure 4. Locality map of *Incisitermes platycephalus* from the University of Florida Termite Collection (red circles). Red star: type locality designated by Light (1933). Yellow star: type locality for *I. nigritus* (= *I. platycephalus*, Snyder, 1946). Small purple dots are termite collecting localities that did not yield *I. platycephalus*.

to, and intercepted in, San Francisco, California (Snyder, 1946).

Identification. The original description of *I. platycephalus* soldier (Light 1933) emphasized three characters that distinguish it from it geographically and morphologically nearest congener, *I. emersoni* (Light 1933), with the former having "a low, flat head", "longer third antennal segment", and "deep angular excavation of the pronotum". Light (1933) provided photographs of the long-headed soldier morph [his plate 7, fig. 1 (head and antennae), fig. 2 (submentum), fig. 4 (mandibles), fig. 7 (pronotum), and fig. 9 (labrum)] which are congruent with those characters in Figures 1 and 3 herein. Snyder's (1946) description of *I. nigritus*, from two soldiers, refered to the soldier head as "nearly flat", the third antennal segment "as long as the fourth and fifth together". He also noted that the left mandible has "two somewhat blunt, marginal teeth … and a sharper pointed tooth near base. Snyder (1946) did not provide figures.

Snyder (1946) described the *I. nigritus* imago head as "dark shining castaneous brown to blackish", the wings as "dark-colored", and the third antennal article as "longer and darker than the second or fourth". Snyder's (1946) measurements of *I. nigritus* match those of the major soldier and alate of *I. platycephalus* from Nicaragua (Figs 2, 3) and compares well with the *I. nigritus* cotype imagos that I have examined: GUATEMALA • 1 colony subsample (includes seven imagos and three pseudergates); Santa Rosa, Buena Vista; 13.82, −90.31; 7 m a.s.l.; 21 May 1945; C. H. Oatridge; CTA14; handwritten label: "Log from Guatemala intercepted in San Francisco, Ca.". Accordingly, *I. nigritus* is a new junior subjective synonym of *I. platycephalus*.

Discussion

I report new records of *I. platycephalus* from the central highlands to the Pacific coast of southeastern Mexico, Guatemala, Honduras, and Nicaragua (Fig. 4). Of the 344 UFTC colony samples of *Incisitermes* from these countries, 107 are *I. platycephalus*, exceeded only by 130 samples of *I. schwarzi*. Nickle and Collins (1988) reported *I. nigritus* from Mexico (San Luis Potosí; Cuidad del Maíz), and *I. platycephalus* also from Mexico (Veracruz; Potrero Viejo); however, inconsistencies with the original descriptions, the current distribution limits, lack of imagos, and images inconsistent with measurements in their identification key, place these records in doubt.

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References

Banks N (1919) Antillean Isoptera. Bulletin of the Museum of Comparative Zoology 62: 475–489 + 2 pls.

Boscaro V, James ER, Fiorito R, Hehenberger E, Karnkowska A, del Campo J, Kolisko M, Irwin NA, Mathur V, Scheffrahn RH, Keeling PJ (2017) Molecular characterization and phylogeny of four new species of the genus *Trichonympha* (Parabasalia, Trichonymphea) from lower termite hindguts. International Journal of Systematic and Evolutionary Microbiology 67: 3570–3575. https://doi.org/10.1099/ijsem.0.002169

Hagen HA (1858) Monographie der Termiten. Linnaea Entomologica 12: i–iii, 4–342 + 459 pls.

James ER, Burki F, Harper JT, Scheffrahn RH, Keeling PJ (2013) Molecular characterization of parabasalian symbionts *Coronympha clevelandii* and *Trichonympha subquasilla* from the Hawaiian Lowland Tree Termite *Incisitermes immigrans*. Journal of Eukaryotic Microbiology 60: 313–316. https://doi.org/10.1111/jeu.12027

Krishna K (1961) A generic revision and phylogenetic study of the family Kalotermitidae (Isoptera). Bulletin of the American Museum of Natural History 122: 303–408.

Latreille PA (1817) Insectes de l'Amerique Equinoxiale, recueillis pendant le voyage de MM. de Humboldt et Bonpland. Seconde partie: CXLII. Termes ailes-bordées. In: Humboldt A von (Ed) Voyage de Humboldt et Bonpland. Deuxieme partie. Observaions de Zoologie et d'Anatomie Comparée 2 (10): 1–111 + pls. F. Schoell et G. Dufour, Paris.

Light SF (1933) Termites of western Mexico. University of California Publications in Entomology 6: 79–164.

Nickle DA, Collins MS (1988) The termite fauna (Isoptera) in the vicinity of Chamela, State of Jalisco, Mexico. Folia Entomológica Mexicana 77: 85–122.

Scheffrahn RH (2014) *Incisitermes nishimurai*, a new drywood termite species (Isoptera: Kalotermitidae) from the highlands of Central America. Zootaxa 3878: 471–478. https://doi.org/10.11646/zootaxa.3878.5.5

Scheffrahn RH (2019a) Expanded New World distributions of genera in the termite family Kalotermitidae. Sociobiology 66: 136–153. https://doi.org/10.13102/sociobiology.v66i1.3492

Scheffrahn RH (2019b) UF termite database. University of Florida termite collection. https://www.termitediversity.org/. Accessed on: 2020-2-20.

Scheffrahn RH, Chase JA, Mangold JR, Hochmair HH (2018) Relative occurrence of the family Kalotermitidae (Isoptera) under different termite sampling methods. Sociobiology 65: 88–100. https://doi.org/10.13102/sociobiology.v65i1.2097

Scheffrahn RH, Krecek J, Maharajh B, Chase JA, Mangold JR, Moreno J, Bayardo H (2005) Survey of the termites (Isoptera: Kalotermitidae Rhinotermitidae Termitidae) of Nicaragua Florida Entomologist 88: 549–553. http://doi.org/fw8h5f

Snyder TE (1922) New termites from Hawaii Central and South America and the Antilles. Proceedings of the United States National Museum 61: 1–32 + 5 pls. https://doi.org/10.5479/si.00963801.61-2441.1

Snyder TE (1924) Descriptions of new species and hitherto unknown castes of termites from America and Hawaii. Proceedings of the United States National Museum 64: 1–40 + 5 pls. https://doi.org/10.5479/si.00963801.64-2496.1

Snyder TE (1946) A small dark–colored new *Kalotermes* from Guatemala. Proceedings of the Entomological Society of Washington 48: 158–160.

Snyder TE, Emerson AE (1949) New names new species. In: Snyder TE, Catalog of the termites (Isoptera) of the world. Smithsonian Miscellaneous Collections 112: 20–282.